The Horned Coot, *Fulica cornuta* Bonaparte

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The so-called "Horned" Coot is a very rare bird which is found only in a restricted area of high Andean plateau country on the borders of northern Chile, western Bolivia and north-western Argentina and is rarely if ever met with below 10,000 feet. The precise limits of its range in Argentina and Bolivia are still unknown, but in Chile it occurs from lake Caritaya, at 12,000 feet in Lat. 19° S. to lake Valeriano and El Cajon del Encierre in Lat. 28° 46′ S. at the head waters of the Huasco river, Atacama. From Lat. 18° S. up to and beyond the Peruvian border it is replaced by the closely allied, similar-sized Giant Coot, *Fulica gigantea*.

Except for a few collectors' specimens, virtually nothing was known about this remarkable coot until, in January 1936, W. R. Millie came across a pair with four young birds at Laguna Grande at 10,000 feet in the Andes of Atacama. Visiting this region again in November of 1945 he found a pair still in residence at Laguna Grande and, on a smaller lake higher up, a second pair occupying a large nest with two eggs about 30 yards from the shore. Investigating further in January of the following year, Millie found a second nest, this time with five eggs, on another small lake 2,000 feet higher up, and further up still at 14,000 feet in completely arid country a series of nests of a most original type.

Approaching these in a boat, Millie found that these bulky waterweed nests were not floating or anchored beneath the surface as he had supposed, but were placed on top of conical mounds of stones built up from the bottom of the lake to a height of about two feet and with an area at the top of approximately 10 square feet.

Determined to follow up this discovery, Millie returned to this lake at the beginning of the following nesting season and was able to actually watch the process of nest building. The stones for the cone foundations were picked up one by one from the lake shore or from the bottom in shallow water and carried in the bill to the building site with both members of a pair taking part in this arduous task.

In view of the interest aroused by this discovery and anxious to obtain further information about the curious "horn" or "proboscis" of this coot and at the same time follow up re-discovery of James's Flamingo of the year before, in 1958 Millie and Behn made a similar survey of the high altitude or "puna" zone immediately to the south of the region traversed by us.

Although Andean and Chilean Flamingos were found in the lagoons and salt lakes at altitudes of between 12,000 and 14,000 feet, there were no signs of either James's Flamingo or the Horned Coot. However, on a small lake of relatively fresh water situated at the southern tip of the very extensive Maricunga salt-lake (Lat. 27° 4′ S: Long. 69° 10′ W.) a large breeding colony of at least 100 of the coots was located, by far the largest concentration of this species ever recorded.

This lake, known as Santa Rosa, is about a square km. in extent and, being fed by a number of thermal springs of only slightly saline water, permits the growth of a limited amount of water-weed, mostly *Ruppia filifolia*, which is entirely absent from the lagoons of high salt content frequented by the flamingos.

On this lake were about 30 nests in all stages of construction, repair or decay (as compared with 36 floating platforms of the Giant Coot, *Fulica gigantea*, found by the author years ago on lake Cota-Cotani in Lat. 18° S., alt. 15,800 feet). Some of these nests were still in use; others had obviously only just been left by the young and others were partially destroyed, while yet others had been renovated or made use of by other birds such as the Andean Crested Duck (*Lophonetta specularoides alticola*), the Crested Grebe (*Podiceps occipitalis juninensis*) and the Andean Gull (*Larus serranus*).

The nest with its five eggs.

All the nests were built on a cone-shaped foundation of stones, varying from 30″ to 36″ in height, and coming very close to the surface without ever actually protruding above it. The cones of the nests in use or recently abandoned were round in shape with a diameter of approximately 13 feet; a random sample of the stones used for building up these cones gave weights of up to 1 lb.

On top of the stone foundations the birds had placed a quantity of soft vegetable matter (*Ruppia filifolia*) arranging it in the shape of a truncated cone to a height of from 14″ to 24″ and a diameter of about 6′ 6″ at the base and narrowing to between 18″ x 24″ at the top, measuring across the actual nest cavity. While the material of the inner walls was in a state of decomposition, it was obvious that the centre walls were continually being renovated by the addition of fresh material which the birds pulled up from below the surface and, in full view, dragged to the nests, for the most part in the bill but sometimes with the entire head and using the curious appendage or "muscular proboscis" which is peculiar to this coot. During this

dragging process part of the material is carried on the back and the rest floats on the water on either side of the body. On reaching the nest the seed-pods are torn off and given to the young for food and the rest of the material used for maintaining the nest in good condition.

At Santa Rosa, due to the late date (January), it was not possible to observe the actual construction of the stone foundations, which would appear to be a unique feature of this coot. No doubt these cones, once built, are used year after year and repaired from time to time. Probably what Millie witnessed at El Cajon del Encierre was this process of repairing existing cones, but even so it is to be presumed that some other method of transportation must also be used, as it would seem hardly possible that the birds could carry stones of a size corresponding to a pound in weight in such a manner.

As far as we are aware, there is no other bird that builds its nest in this peculiar and original fashion but it is also necessary to add that we now know that it must not be regarded as the invariable pattern of the species, as three nests found by us at lake Caritaya, Andes of Arica (See Supplement *Las Aves de Chile* p. 399) where a fair amount of vegetation is available, showed no signs of these stone foundations but were built in shallow water on top of small natural hillocks or "blisters" on the muddy bottom.

As regards the coots themselves, the adults are uniformly blackish in both sexes, somewhat darker on the head and merging into slate colour on the ventral surface. The plumage of the immature is in general lighter in colour, lacks the black on the head and shows a large white area on the chin and throat. The bill is stout, yellow with a suggestion of orange, and a conspicuous black spot on the culmen in the adult, and in the immature greenish-black with a slight brownish tint. In both adult and immature

A pair of *Fulica cornuta* with two young. Santa Rosa lake, January, 1958.

the legs and feet are greenish-brown with dark grey areas at the joints. The toes, provided with strong claws, are very large with the middle toe attaining a length of from 9 cm. to 13 cm., it being noteworthy that in the specimens collected for examination of the "horn" or proboscis the feet of the males are considerably larger than those of the females. In the nestling the feet are black, the bill pink with black and yellow at the tip, and the entire body, with the exception of a very small whitish area on the chin, covered with fine, jet-black down. The iris in the nestling and in young immature birds is brown, but as the bird grows this colour gradually gives place to the orange-brown characteristic of the adult.

The appendage on the head in the area where most coots have a horny frontal shield is present in both sexes and has been incorrectly referred to in the nomenclature of the bird as a horn "*cornuta*". In a study made in 1957 by Dillon Ripley, the statement is made that it is "perhaps somewhat extensible or erectile", and histological sections prepared by Dr. Behn

Heads of *Fulica cornuta*, showing the strange muscular organ, incorrectly termed "horn".

demonstrate convincingly that it is a purely muscular organ and as such not only extensible but also actively erectile, and should be described as a miniature trunk or proboscis.

What can be the purpose of this curious organ? As already pointed out, there is first-hand evidence that it is sometimes used to assist in the transportation through the water of the vegetable material required for the top structure of the nest and for feeding the young, but if that is its real "raison d'être", how can we explain that the Giant Coot, which lacks this organ, also drags material to the nest in exactly the same manner, the

only difference being that in this latter species the nest is a large floating platform, usually in deep water, but anchored to the aquatic vegetation growing below the surface. It will probably be better to say that we do not know the purpose of the Horned Coots' peculiar muscular appendage and leave it at that.

Apart from our observations relating to reproduction, very little is known regarding the habits and life cycles of either the Horned or the Giant Coots. We can say, however, that notwithstanding their reluctance to take flight during the day, preferring like all coots to skim along the surface with dangling or treading feet, there is no doubt that both species are strong fliers and accustomed to migrate from one feeding ground to another, preferably it would appear, at night.

In the case of *F. cornuta* Millie was able to verify personally statements made to him to this effect by the local Aymará inhabitants (and to the writer in the case of the Giant Coots at lake Cota-Cotani), as in April of 1956 while camped on the shores of the aforementioned Laguna Grande a flock of about 50 of these coots arrived after dusk, spent the night and the following day at the lake, and during the following night disappeared completely.

All photographs: Dr. F. Behn

Eggs of *Fulica cornuta*

The eggs of this coot, in which clutch size varies from three to five, are almost identical both in size and colour to those of the giant species. Our series of 15 eggs gives means of 64.3 $\pm$ 0.55 x 44.9 $\pm$ 0.60 mm.

Reference:
Johnson, A. W., Behn, F. and Millie, W. R. (1958) The South American Flamingos. *The Condor* 60: 289–299.